

DERWENT-ACC-NO: 1996-186583  
DERWENT-WEEK: 199619  
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TITLE: Method of drilling of small holes in superhard materials  
- employs monocrystal diamond tip sealed to coaxial metal  
holder by multicomponent suspension in vacuum and shaped  
by laser pulses  
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PATENT-ASSIGNEE: DETCHUEV YU A[DETCI]  
PRIORITY-DATA: 1992RU-0012489 (December 17, 1992)  
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RU 2042478 C1 August 27, 1995 N/A 003 B23B  
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INT-CL (IPC): B23B051/00  
ABSTRACTED-PUB-NO: RU 2042478C  
BASIC-ABSTRACT:

A diamond drill for machining of small holes in superhard minerals, ceramics and high strength alloys, employs a monocrystal diamond tip joined to a metallic holder by a multicomponent eutectic compound.

The monocrystal diamond tip (1) held in a jig is sealed to the metal holder (3) in an inert medium or vacuum at  $1.3 \times 10$  power minus 2 Pascals by a multicomponent eutectic suspension with a carbide forming component and adhesive (2) over 3-4 minutes and is shaped by laser pulses of 1.06 micron wavelength at 3-10 kilo Hertz and polished.

ADVANTAGE - This increases mechanical strength of drill and permits increasing drilling depth and reducing diameter size to below 0.7 millimetres. Bul. 24/27.8.95

CHOSEN-DRAWING: Dwg.1/1

TITLE-TERMS: METHOD DRILL HOLE SUPERHARD MATERIAL EMPLOY MONOCRYSTAL DIAMOND  
TIP SEAL COAXIAL METAL HOLD MULTICOMPONENT SUSPENSION VACUUM SHAPE  
LASER PULSE

DERWENT-CLASS: P54

SECONDARY-ACC-NO:  
Non-CPI Secondary Accession Numbers: N1996-156158

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